ABSTRACT

The present invention relate to a two-stage gasification process using a gas generator for the recovery of strongly alkaline chemicals and energy value from a cellulose spent liquor. The temperature in the first reaction zone of the gas generator is maintained between 1000 C. and 1400 C. by the controlled addition of an oxygen containing gas. A strongly alkaline smelt comprising alkali oxide, alkali hydroxide, alkali carbonate and alkali borate's corresponding to at least 75 % by weight of the smelt is recovered from below the first reaction zone of the gas generator. A gaseous components stream formed by exothermal reactions in the first reaction zone are directed to a second reaction or gas transfer zone of substantially of updraft or up-flow design, wherein the gaseous stream is cooled to a temperature below about 1000 C, said cooling preferably achieved by endothermal decomposition of cellulose spent liquor injected into the gaseous stream.